A. Studies and Reports

A.1 PERTINENT STUDIES AND PLANS

This section reviews available transportation plans and studies pertinent to the Southeast Arizona Regional Transportation Profile. A list of the documents reviewed in this section is summarized in Table A.1. A summary of each of the documents listed follows.

Table A.1 Summary of Studies and Plans Reviewed

Document Title	Author	Date
Arizona Department of Transportation (ADOT) Plans and Studies		
I-10 Southeast Corridor Study, I-19 to the Pima/Cochise County Line	URS Corporation and Kimley-Horn & Associates, Inc.	Ongoing
I-10 Final Project Assessment: State Route 90 TI	Kimley-Horn & Associates, Inc.	February 2005
I-10 Final Project Assessment: State Route 90 TI to Ocotillo TI	Kimley-Horn & Associates, Inc.	April 2004
The National I-10 Freight Corridor Study	Wilbur-Smith Associates	May 2003
I-19 Initial Project Assessment: West Frontage Road, Country Club Road to Ruby Road	Jacobs Civil Inc.	September 2004
I-19 Revised Initial Project Assessment: San Xavier Road – Ajo Way	AMEC International	June 2003
I-19 Initial Project Assessment: Southbound Frontage Road, MP 5.8 to MP 6.1	Alpha Engineering	July 2002
I-19 Corridor Study, I-10 to Pima/Santa Cruz County Line, Corridor Study and General Plan	Kimley-Horn & Associates, Inc.	October 2003
ADOT Plans and Studies		
SR 80 Project Scope: B-10 TI (UPRR Underpass/SR 80)	Arizona DOT	April 1999
SR 82 Final Project Assessment: MP 40.6	ADOT Roadway Predesign Section	March 2005
SR 82 Final Project Assessment: MP 36.58 and MP 36.89	ADOT Roadway Predesign Section	March 2005

Table A.1 Summary of Studies and Plans Reviewed (continued)

Document Title	Author	Date
SR 90 AASHTO Design Criteria Report: Central Avenue to Moson Road (Whetstone TI-Jct. SR 80 Hwy)	Parsons Transportation Group	August 2004
SR 90 Initial Project Assessment: Central Avenue to Moson Road MP 323.74 to MP 325.37	Parsons Transportation Group	February 2005
SR 90 Initial Scoping Letter: San Pedro River Bridge #425	DMJM-Harris	January 2002
SR 189 Initial Project Assessment: MP 0.095 (International Border Station)	Alpha Engineering	August 2002
U.S. 191 Final Design Concept Report: Whitewater Draw to Thompson Road	Carter-Burgess	December 2003
U.S. 191 Final Project Assessment: 191A, Sunsites at High Street	ADOT Roadway Predesign Section	October 2004
Move AZ Long-Range Transportation Plan	Cambridge Systematics, Inc.	August 2004
Nogales Railroad Assessment Study	Kimley-Horn & Associates, Inc.	2005
Benson Plans and Studies		
City of Benson General Development Plan	WLB Group and Community Sciences Corporation	October 2002
Bisbee Plans and Studies		
City of Bisbee General Plan Update	The Planning Center	October 2003
Cochise County Plans and Studies		
Cochise County Roadway Needs Report	Cochise County	April 2002
Draft Northwest Cochise County Transportation Planning Study	Curtis Lueck & Associates	November 2004
Douglas Plans and Studies		
City of Douglas General Plan	The Planning Center	2002
Douglas Transportation Study	Parsons Brinckerhoff Quade & Douglas	1994
Douglas/Agua Prieta Port Efficiency Study	Kimley-Horn & Associates, Inc., and Suma Sinergia, S.A. de C.V.	September 2000

Table A.1 Summary of Studies and Plans Reviewed (continued)

Document Title	Author	Date
Nogales Plans and Studies		
Unified Nogales/Santa Cruz County Transportation 2000 Study	Kimley-Horn & Associates, Inc.	2000
Nogales General Plan Update 2020	Planners Ink, and Kimley-Horn & Associates, Inc.	September 2003
Mariposa U.S. Port of Entry Feasibility Study – 95% Submittal	Kimley-Horn & Associates, Inc., and BPLW	February 2005
Nogales CyberPort Project Report	University of Arizona	June 2003
Pima Association of Government		
2001-2025 Regional Transportation Plan Amendment	PAG	January 2004
Intelligent Transportation Systems Strategic Deployment Plan for the 21st Century	PAG	July 2004
Pima Association of Governments Transportation Improvement Program, FY 2005-2009	PAG	June 2004
Regional Aviation System Plan – Executive Summary	Wilbur Smith Associates and Kimley-Horn & Associates, Inc.	June 2002
Regional Pedestrian Plan	PAG	July 2000
Regional Plan for Bicycling	PAG	July 2000
Southeast Area Arterial Study	Kimley-Horn & Associates, Inc.	2005
Patagonia		
Town of Patagonia General Plan	Town of Patagonia	February 2001
Pima County Plans and Studies		
Pima County Comprehensive Plan	Pima County	2001
Santa Cruz County Plans and Studies		
Santa Cruz County Comprehensive Plan	Santa Cruz County	June 2004
Rio Rico Corridor Study	Tetra Tech	October 2002
Sahuarita Plans and Studies		
General Plan, Town of Sahuarita	Entranco	2002

Table A.1 Summary of Studies and Plans Reviewed (continued)

Document Title	Author	Date
Sierra Vista Plans and Studies		
Vista 2000 General Plan	City of Sierra Vista	December 2002
Sierra Vista Small Area Transportation Study	Parsons Brinckerhoff	Undated excerpt
Southeastern Arizona Governments Organization Plans and Studies		
Transportation Improvement Plan Amendment	SEAGO	2005
Tombstone Plans and Studies		
City of Tombstone Master Plan	City of Tombstone	Undated excerpt
Tucson		
City of Tucson General Plan	City of Tucson	2002
Willcox Plans and Studies		
City of Willcox General Plan	Community Sciences Corporation	2002

A.2 ADOT PLANS AND STUDIES

I-10 Southeast Corridor Study, I-19 to the Pima /Cochise County Line (Ongoing)

The purpose of the I-10 Corridor Study is to identify transportation needs and transportation deficiencies, and to develop recommendations for corridor rehabilitation to meet multimodal transportation demands in the year 2030 along approximately 37 miles of I-10 from I-19 to the Pima/Cochise County line. The I-10 Corridor Study involves the development of planning studies, engineering analyses, an environmental overview, and planning-level transportation roadway design. Study recommendations are intended for use by ADOT to program interstate rehabilitation, preserve right of way, manage corridor land uses, and protect access control. Currently, this study is underway.

I-10 Final Project Assessment: State Route 90 TI (February 2005)

This project is partially located in the City of Benson, between MP 301.1 and MP 302.8 (approximately 1,500 feet east of the SR 90 TI). This project is the first phase of a two-phase project. The scope of work in the first phase includes reconstructing the I-10/SR 90 TI overpass structures, SR 90 mainline below the overpasses, the entrance and exit ramps in both directions, and the north frontage road.

I-10 Final Project Assessment: SR 90 TI to Ocotillo TI (April 2004)

This project is located in the City of Benson, between the Ocotillo Traffic Interchange and the SR 90 traffic interchange on westbound I-10. The project

limits are from MP 302.4 to MP 304.8. The project involves construction of a climbing lane from the westbound entrance ramp of the Ocotillo TI to the westbound exit ramp of the SR 90 TI. This project was superseded by the I-10, SR 90 TI Project Assessment (see above).

The National I-10 Freight Corridor Study (May 2003)

The objectives of this study was to assess the importance of freight moving on I-10 to the economy of the corridor states and the nation, to identify the current and future traffic operations and safety problems which impede freight flow, and to identify and evaluate strategies needed to facilitate freight flow within the corridor. This study was a joint effort by eight state DOTs, including Arizona, California, New Mexico, Texas, Louisiana, Mississippi, Alabama, and Florida.

The results of the study indicate that the most feasible freight strategies for state DOTs are those that are directed at the highway system, including adding additional lanes and Intelligent Transportation System (ITS)/Commercial Vehicle Operations technologies (in conjunction with roadway widening). The return on ITS investments was an estimated $3.00 in benefits for every $1.00 spent. The results showed that traditional capacity enhancement should continue as a focus for reducing congestion; however, adding all the needed capacity was not financially viable without a significant increase in funding.

The study found that freight densities along some parts of the corridor were feasible to support truck/auto separation. The report stated that this concept was in early stages of development from a traffic operations and design/ engineering standpoint, and will require further innovation prior to being implemented on I-10.

The report concluded that truck bypasses and improvements in truck productivity were not feasible as stand-alone strategies. Multimodal approaches resulted in minimal improvements in corridor capacity.

I-19 Initial Project Assessment: West Frontage Road, Country Club Road to Ruby Road (September 2004)

This project is located on the I-19 West Frontage Road from Al Harrison Boulevard to Ruby Road. Recommended improvements include widening shoulders, increasing the superelevation rates, and reducing the profile grades of the frontage road where American Association of State Highway and Transportation Officials (AASHTO) design criteria deficiencies exist. The project is listed in the *2005-2009 ADOT Five-Year Transportation Facilities Construction Program* as Item 10406, with a programmed amount of $500,000 in fiscal year 2006.

I-19 Revised Initial Project Assessment: San Xavier Road – Ajo Way (June 2003)

This project is to widen the mainline of I-19 to eight lanes from MP 57.07 to MP 61.97. The estimated cost of the project is $21.978 million, and the project is listed in the 2005-2009 ADOT *Five-Year Transportation Facilities Construction Program* for fiscal years 2006 and 2007.

I-19 Initial Project Assessment: Southbound Frontage Road, MP 5.8 to MP 6.1 (July 2002)

This safety project is to flatten embankment slopes, extend corrugated metal pipes, construct catch basins and erosion protection, and remove a portion of existing guardrail along the I-19 southbound lane. The estimated cost of the project is $108,900. The project is not programmed, and it is anticipated that it will be implemented using District Minor Project funds.

I-19 Corridor Study, I-10 to Pima/Santa Cruz County Line, Corridor Study, and General Plan (October 2003)

This I-19 Corridor Study involved the conduct of planning studies, engineering analyses, environmental studies, and preliminary transportation design for 33 miles of I-19 from I-10 south to the Pima/Santa Cruz county line. This study documented existing and future (2030) corridor transportation conditions, needs, and deficiencies. A summary of the key project recommendations are below.

Freeway Widening

- Reconstruct or widen the existing freeway to four basic lanes, plus auxiliary lanes in each direction between the future Sahuarita Corridor and I-10; and
- Reconstruct or widen the existing freeway to three basic lanes, plus auxiliary lanes in each direction between Continental Road and the future Sahuarita Corridor.

Frontage Roads

I-19 frontage roads between Arivaca Road and Continental Road primarily serve as access roads to land development along the corridor. A study should be conducted in cooperation with Pima County to define the future function of these frontage roads, and to determine whether these frontage roads will serve a function consistent with roadways on the State Highway System.

If frontage roads are to remain under ADOT jurisdiction, convert and reconstruct existing discontinuous two-way frontage roads between Canoa Road and Continental Road to continuous, one-way frontages. In conjunction with conversion of the frontage roads, construct a new freeway crossing on the Camino Encanto roadway alignment.

The recommendation for continuous, one-way frontage roads between Canoa Road and Continental Road received significant public opposition at the October 2002 open houses. Support, however, was received for a new freeway crossing on the Camino Encanto roadway alignment and construction of continuous frontage roads. An ADOT design concept study should be conducted to evaluate alternatives to the above recommendation, including alternatives for providing one-way frontage roads between Canoa Road and the Camino Encanto crossing.

I-19/I-10 Interchange

The reconstructed I-19/I-10 interchange will require additional interchange infrastructure to accommodate 2030 traffic demands. Ramps to and from the north at the Ajo Way interchange should be removed and parallel one-way roadways connecting the southbound I-10 frontage roads at 29th Street and Ajo Way; and Ajo Way, local streets, and the northbound I-10 frontage roads at 29th Street.

Arterials in the vicinity of the I-19 and I-10 interchange, including Ajo Way, 6th Avenue, and 29th Street will require further study and widening to accommodate 2030 traffic demands for the interchange recommendation listed above.

There were also extensive interchange and alternative mode recommendations contained in the report.

SR 80 Project Scope: B-10 TI (UPRR Underpass/SR 80) (April 1999)

This project is to develop a design concept report for reconstruction of the SR 80/B-10 junction, including widening approach roadways to five lanes, reconstructing the Union Pacific Railroad underpass, improving drainage, and providing landscaping. This project is located entirely within the City of Benson.

SR 82 Final Project Assessment: MP 40.6 (March 2005)

The scope of this project is to extend a concrete box culvert, eliminate guardrail, and flatten slopes at MP 40.6 near the Town of Sonoita in Cochise County. The project is estimated to cost $150,000; and is anticipated to be constructed using District Minor Project funds.

SR 82 Final Project Assessment: MP 36.58 and MP 36.89 (March 2005)

This project is to extend existing box culverts and remove existing guardrail at MP 36.58 and MP 36.89, respectively. It is estimated to cost $347,000. The project, which is not programmed, is anticipated to be constructed using FY 2006 District Minor Project funds.

SR 90 AASHTO Design Criteria Report: Central Avenue to Moson Road (August 2004)

The AASHTO Design Criteria analysis found that the existing superelevation was less than the recommended superelevation on SR 90 at Station 172+32.37. The analysis also found that the existing shoulder width for this road segment was five feet versus the required AASHTO shoulder width of eight feet. A design exception for the shoulder width was requested, because shoulder widening was not part of the project.

SR 90 Initial Project Assessment: Central Avenue to Moson Road, MP 323.74 to MP 325.37 (February 2005)

This project involves widening SR 90 from two lanes to five lanes, with a continuous left-turn lane. The project area is located from MP 323.74 to MP 325.37 at the eastern boundary of Sierra Vista. The project is not programmed in the ADOT *2005-2009 Transportation Facilities Construction Program*. The estimated cost is $3.2 million, and it is anticipated that District Minor Project funds will be used for this project.

SR 90 Initial Scoping Letter: San Pedro River Bridge #425 (January 2002)

This project is a bridge deck rehabilitation project located on SR 90 in Cochise County at MP 328.64. The project is not listed in the ADOT 2002-2006 *Transportation Facilities Construction Program*. The estimated construction cost is $20,908, and it is anticipated State Bridge Repair funds will be used to fund this project.

SR 189 Initial Project Assessment: MP 0.095 (August, 2002)

This project, located on SR 90 at MP 095, involves construction of catch basins with storm drains, replacing existing curb, construction of guardrail, and a pedestrian walkway. The estimated construction cost is $127,595. The project is not programmed, and it is anticipated that District Minor Project funds will be used to fund this project.

U.S. 191 Final Design Concept Report: Whitewater Draw to Thompson Road (December 2003)

This Design Concept Report analyzed alternatives to improve traffic operations and drainage on U.S. 191 from MP 23.48 to MP 27, including a segment through the unincorporated community of Elfrida. The results of the analysis showed that the right-of-way impacts, resulting from widening the roadway and the potential drainage impacts, did not justify the project benefits; and the project was not recommended to be implemented.

U.S. 191 Final Project Assessment: 191A, Sunsites at High Street (October 2004)

This project is an intersection improvement at the intersection of High Street and U.S. 191 in Sunsites Arizona. The project involves widening U.S. 191 to accommodate a southbound right-turn lane and a northbound left-turn lane. The project is not yet programmed, and it is estimated that the project will be funded using District Minor Project Funds to cover the estimated construction cost of $346,000.

MoveAZ Long-Range Transportation Plan (August 2004)

The ADOT Long-Range Transportation Plan provides planning guidance for ADOT for a 20-year period. The project involved development of a strategic direction for the long-range transportation plan; application of performance-based analysis to evaluate transportation projects; and coordination with transportation-related agencies, stakeholders, and the public. The steps of the long-range project analysis process included the following:

- Identifying potential projects on the state transportation system;
- Calculating performance on each measure and factor for each of these projects; and
- Weighting performance factors to reflect the greater value attached to some factors.

The MoveAZ project evaluated over 100 potential project bundles for the following three investment scenarios:

1. **Constrained –** A projection of currently available funding sources through the year 2025;
2. **Additional revenues –** An increase above the constrained scenario based on a reasonable increase in revenues that could be derived from Federal and/or state sources); and
3. **Unconstrained –** No financial constraints, including all projects that address specific needs on the state highway transportation system.

The highway capacity projects on study area roads for the constrained scenario are summarized in Table A.2.

Table A.2 Move AZ Plan Projects (Constrained Scenario)

Road	Beginning Milepost	Ending Milepost	Description
SR 92, SR 90	321	325	Widen to 6 lanes, raised median
SR 92	352	354	Widen to 4 lanes, some segments with turn lanes
SR 90	322	336	Widen to 4 lanes, some segments with turn lanes
I-10	262	275	Widen to 6 lanes
I-19	63	91	Widen to 6 lanes (16 miles) and add auxiliary lanes (12 miles)
I-10	275	288	Widen to 6 lanes, reconstruct bridge
I-10	288	303	Widen to 6 lanes

Nogales Railroad Assessment Study (White Paper)

The study, performed as part of this project, provided input to the Nogales Port Authority regarding the impacts of international freight rail operations on traffic and pedestrian flows within Nogales Arizona; and identifies a toolbox of mitigation strategies to mitigate documented impacts. Impacts included need for improved vehicular access, pedestrian access, and emergency service provider access. Mitigation strategies included the following:

- Traffic control device improvements;
- ITS Technologies;
- Pedestrian overpasses;
- Public information program;
- Duplication of emergency services on both sides of the railroad tracks; and
- Notification procedures for municipal agencies.

The white paper is included in Appendix B of this document.

Benson Plans and Studies

City of Benson General Development Plan (October 2002)

The circulation element of the *Benson General Development Plan* indicated that road widening is needed on SR 80 and SR 90, and new east-west roadway connections are needed to link SR 80 and SR 90. Other transportation needs documented in the report included the need for construction of a continuous frontage road on the south side of I-10 (between Exit 302 and Fourth Street), and a roadway connection linking Ocotillo Road to SR 90.

Multimodal considerations include development of bicycle lanes along SR 90 to connect Kartchner Caverns with Benson, and development of transit service to connect Benson to other cities and to local activity centers.

City of Bisbee General Plan Update (October 2003)

The transportation/circulation element of the General Plan included discussion of 2004 transportation enhancements to the Bisbee traffic circle, which provides access to SR 80 and SR 92; and the 2003 purchase of a wheelchair accessible bus for the Bisbee Bus service.

The report stated that there was a need to connect different areas of Bisbee through the construction of new pedestrian trails and bicycle routes. Road maintenance was identified as a major concern within the City. The report stated there is a need to provide enhanced transportation corridors to serve the airport growth areas, while preventing the increase of commercial truck traffic through the Historic Warren area.

Cochise County Plans and Studies

Cochise County Roadway Needs Report (April 2002)

This report recommends an east-west roadway connection between Moson Road and SR 92 to supplement Ramsey Road, and a north–south roadway connection between Hereford and SR 90 to supplement Moson Road. A planning study was recommended to analyze the best location for these connections.

Draft Northwest Cochise County Transportation Planning Study (November 2004)

This transportation planning study covers a 36-mile area between the Pima/□Cochise County Line, SR 90, one mile north of I-10, and south to the forest service boundary. The eastern boundary of the study area is within the incorporated City of Benson. The study incorporates consideration of three master planned developments in the area south of I-10: Whetstone Ranch, Smith Ranch, and Empirita Ranch. Traffic analyses were conducted for existing and 2035 timeframes. The report analyzed a number of future roadway alternatives to meet travel demands. The preferred alternative included the following elements:

- Reconstructing the SR 90 and Mescal/J-Six interchanges;
- Reconstructing or relocating the Skyline interchange;
- Widen SR 90 to six lanes;
- Providing an east-west connector road north of I-10, and building a new connector road generally along the Whetstone/Jenella alignment; and

- An eventual connection between J-Six Ranch Road and SR 90, and possibly an additional connection further south.

Currently, the report is being finalized.

Douglas Plans and Studies

City of Douglas General Plan (2002)

The *Douglas General Plan*, prepared in 2002, contains general transportation policies, roadway functional classification information, and information on the *1994 Douglas Transportation Study*. Currently, a new *Small Area Transportation Study* is underway.

Douglas Transportation Study (1994)

The *Douglas Small Area Transportation Study* developed a five-year and long-range plan of transportation improvements. The planning horizon for that study was 2013. Since 1994, eight of the 11 highway improvements from that study have been implemented, two are underway, and one (the traffic signal installation at 15th Street and Washington Avenue) has yet to be implemented.

Douglas/Agua Prieta Port Efficiency Study (September 2000)

This study involved an analysis of port operations and traffic flow at the Douglas/Agua Prieta port of entry. The purpose of the study was to recommend strategies and actions in the areas of port operations, technologies, and infrastructure to improve the current and future flow of passenger vehicles, commercial cargo, and pedestrians at this international border crossing facility. A summary of the recommendations relating to intermodal transportation facilities on the U.S. side of the border include the following:

- Short-term recommendations:
  - Continue planning, design, and construction for the development of a new roadway connection from the port of entry to Chino Road; and
  - The City of Douglas, ADOT, and U.S. Port agencies should cooperate in the development of truck circulation plans for Douglas.
- Long-Term Recommendations:
  - Continue bi-national planning activities for a future commercial facility, west of the current port facility. Commercial cargo facilities should be designed to provide truck circulation and port accessibility, so that truck routing and circulation do not adversely impact the urban areas of Douglas and Agua Prieta.
  - Initiate planning activities for a new rail crossing in conjunction with planning activities for a future port of entry.
  - Continue international coordination on Naco Rail crossing.

Nogales Plans and Studies

Unified Nogales/Santa Cruz County Transportation 2000 Study

This study presented a short-term (2005), mid-term (2010), and long-term (2020) transportation plan for the Nogales/Santa Cruz County planning region. Study recommendations relating to state routes included the following:

- 2001-2005 recommendations:
  - SR 82/Dusquesne Road, intersection improvements;
  - SR 82/Kino Springs Drive, intersection improvements;
  - North-South Interconnector, SR 189 to I-19, corridor study;
  - East-West Interconnector, SR 189 to SR 82, corridor study;
  - I-19 Frontage Road, Rio Rico to Western Avenue, corridor study;
  - South River Road, Via Frontera to SR 82, paving;
  - B-19, International Border to Doe Street, pavement preservation;
  - East I-19 Frontage Road, Rio Rico to Ruby Road, design and construct frontage road;
  - Bike and Pedestrian Plan, development; and
  - Country Club Road, West Frontage Road to Grand Avenue, study, design and construction.
- 2006-2006 recommendations:
  - Rio Rico Drive, I-19 to Pendleton Drive, reconstruct to four-lane section;
  - SR 289 Interconnector, Via Frontera to SR 82, corridor study;
  - North-South Interconnector, SR 189 to I-19, design and construct four-lane divided highway. Reconstruct I-19 interchange; and
  - Country Club Drive, North-South Interconnector to Grand Avenue, design and construct three-lane section.
- 2011-2020 recommendations:
  - East-West Interconnector, SR 189 to SR 82, design and construct a five-lane section and three I-19 traffic interchanges;
  - SR 289 Interconnector, Via Frontera to SR 82, design and construct a five-lane section;
  - I-19 Frontage Road, Rio Rico to Western Avenue, design and construct frontage roads;
  - Calle Sonora, Grand Avenue to SR 82, design and construct a three-lane section;

- Frontage Road, Ruby Road to Rio Rico Road, design and reconstruct frontage road; and
- Palo Parado, I-19 to Pendleton, design and construct to a two-lane section, and construct new bridge across Santa Cruz River.

Nogales General Plan Update 2020

The *Nogales General Plan Update* Circulation Element identified the following concerns:

- Conflicts between commercial trucking and other traffic, particularly during produce season;
- Lack of streetscape features;
- Lack of sidewalks and nonconnectivity of existing sidewalks;
- Conflicts created by surface railroad crossings;
- Maintenance; and
- Lack of off-street parking.

Goals included designating commercial truck routes on the following:

- SR 189, International Border to Grand Avenue;
- I-19 and I-19 frontage roads; and
- Grand Avenue, Doe Street to I-19.

Mariposa U.S. Port of Entry Feasibility Study – 95% Submittal (February 2005)

This study was commissioned to examine the requirements, costs, and benefits of expansion of the Mariposa Port of Entry. Access to the Mariposa Port of Entry is provided by SR 189 from the north and Mexican Highway 15 from the south. Circulation through the site is inhibited, because of the narrow access across the border, placement of existing buildings within the site, lack of definition of parking and vehicle exit lanes, multiple access roads to commercial areas; pedestrians intermixed with vehicle traffic and no wide load provisions or bus routes. Three alternatives were developed and analyzed to address these concerns, and subsequently a preferred alternative was recommended.

Nogales CyberPort Project Report (June 2003)

This study involved development of recommendations for improving trade systems through the Nogales Port of Entry. Study recommendations as related to state routes include:

- Develop highway infrastructure improvements in Mexico and the United States;

- Develop regional highway and rail improvements;
- Develop intermodal inland port infrastructure;
- Conduct further studies of Arizona trade leakage and transportation routing; and
- Examination of solutions addressing the impact of commercial rail operations through downtown Nogales.

A.3 PIMA ASSOCIATION OF GOVERNMENTS PLANS AND STUDIES

2001-2025 Regional Transportation Plan Amendment (January 2004)

The 2025 Regional Transportation Amendment for PAG region amends the 2001-2025 Regional Transportation Plan that was adopted in 2001. Proposed funded projects and unfunded projects are presented in the report. A listing of funded RTP projects that affect the Southeast Arizona Regional Transportation Profile area is shown in the Programmed Projects section. Currently, a draft *2030 Regional Transportation Plan* is under development.

ITS Strategic Deployment Plan for the 21st Century (July 2004)

This plan provides an ITS implementation plan and information on current ITS infrastructure. Recommended ITS projects that impact the study area are summarized below.

Short-Term Projects (2005-2009)

- Implement freeway service patrol for metropolitan freeway;
- Upgrade interagency communications for incident and emergency response, link with DOTs;
- Training for practitioners for incident management and traffic control of incidents; and
- Canamex Corridor ITS Study.

Mid-Term Projects (2010-2014)

- Incident Management System – Install vehicle detectors along the freeway to determine speed, occupancy, and counts.
- Freeway Management System – Phase 4 – Expand the system along I-10 and I-19 to include more fiber, PTZ, and variable message signs.

- Install software to monitor Freeway Management System detection information and alarm for likely incidents. Activate queue detection at key interchanges to allow traffic adaptive control.
- Expand service patrol to respond to freeway and arterial roadways.
- Implement regional advanced travel information on a regional web page.

Long-Term Projects (2015-2030)

- Improvements to Freeway Management System along I-10 and I-19 to include more fiber, PTZ and variable message signs;
- Improve data collection, processing, archiving, and dissemination functions for regional traveler information system; and
- Upgrade video/transmission equipment for aircraft.

Other planned ITS projects include ITS-related bicycle and pedestrian projects (specific projects were not listed) and transit projects (upgrade AVL/ Communications system, and expansion of transit priority system).

PAG Transportation Improvement Program, FY 2005-2009 (June 2004)

The PAG Transportation Improvement Plan (TIP) is a five-year schedule of proposed transportation improvements within the Pima County, Tucson urbanized area. It is updated annually. A list of current funded TIP projects that affect the corridor is summarized in the Programmed Projects section.

Regional Aviation System Plan – Executive Summary (June 2002)

The Regional Aviation System Plan provides a 30-year outlook for airport, aviation, and air transportation needs in Pima County, and the Benson Municipal Airport. The plan provides recommendations for each airport. It also provides information on roadway and intermodal projects that affect the airport access, based on information in the PAG's *2001-2025 Regional Transportation Plan*.

Regional Pedestrian Plan (July 2000)

This plan is a policy document to be used to help develop and improve a pedestrian system within the Tucson area. The plan describes system needs, recommended operating policies, and funding options. The Plan recommends that an inventory of pedestrian facilities be established.

Regional Plan for Bicycling (July 2000)

This plan focuses on urban, suburban, and rural bicycle system and program elements; and was based on jurisdictional inputs. The plan recommends the development of 400 new miles of signed bike routes, shoulders, and bike lanes;

and 50 miles of new shared use paths by 2010. Longer term, 2020 goals for bike facilities were also defined.

Southeast Area Arterial Study (2005)

This project established a long-range plan for the study area bounded by I-19 on the east, Valencia Road and I-10 on the north, SR 83 on the east, and the Santa Rita Experimental Range/Coronado National Forest on the south. It includes areas under the jurisdictional control of the City of Tucson, Pima County, Town of Sahuarita, State of Arizona, and the San Xavier District of the Tohono O'odham Nation.

The *Southeast Area Major Streets and Routes Plan* developed for the study consists of approximately 190 miles of roadway of which 20 miles are planned as fully access controlled roadways, 48 miles are planned as limited access controlled roadways, and 122 miles are arterial roadways.

A parkway facility was recommended between Kolb Road and I-10 to the east. The recommended alignment connects with I-19 via a system interchange in the vicinity of El Toro Road just south of Sahuarita Road and the Town of Sahuarita's planned City Center. This location provides the opportunity to extend west of I-19. The recommended freeway extends east along the El Toro Road alignment, and then turns north along the Wilmot Road alignment, minimizing impacts to sensitive cultural areas, as well as avoiding the Sahuarita Bombing Range. North of the cultural resource areas, the freeway shifts to the Kolb alignment to provide continuity to areas north of I-10. A system interchange will be required along I-10 at Kolb Road. It is also recommended that right of way be preserved along the Andrada Road alignment from Wilmot Road to I-10 in the vicinity of SR 83 to provide future opportunities for a fully access controlled roadway connecting with I-10 to the east.

A.4 PATAGONIA PLANS AND STUDIES

Patagonia General Plan (February 2001)

Goals of the *General Plan* relating to transportation include:

- Limiting Highway 82 potential negative impact on the Town;
- Encouraging social interactions in streets and parking areas; and
- Respecting the fact that minimally maintained streets may help keep speeds low and town costs in check.

The plan describes how SR 82, which bisects the town, connects Patagonia with the neighboring communities of Sonoita and Nogales; and serves as a shortcut for eastbound truck drivers to reach I-10 and Sierra Vista from Nogales. There is no local bus or rail service, but there is a van shuttle service between Patagonia and Nogales.

Pima County Plans and Studies

Pima County Comprehensive Plan (2001)

The purpose of the 2001 Pima County Comprehensive Plan is to conserve the natural resources of Pima County; to ensure efficient expenditure of public funds; and to promote the health, safety, convenience, and general welfare of the public.

The Land Conservation Element, as adopted as part of the overall comprehensive plan, was based on the draft *Sonoran Desert Conservation Plan*. The draft *Sonoran Desert Conservation Plan's* main purpose was to ensure the long-term survival of the full spectrum of plants, animals, and biological communities that are indigenous to Pima County. This plan identifies biological corridors and critical habitats necessary to accomplish this goal. Within the PAG region, the Comprehensive Plan identifies four types of areas:

1. **Important Riparian Areas –** The Santa Cruz River, the area between I-19 and Old Nogales Highway near Sahuarita, the Tanque Verde Creek in northeastern Tucson, and the Rincon River are all identified as Important Riparian Areas.
2. **Biological Core Management Areas –** Biological Core Management Areas have a high potential habitat for five or more priority vulnerable species, special elements (such as caves), and other unique features. Areas of the Coronado National Forest to the north and south of Tucson are identified as Biological Core Areas.
3. **Multiple Use Areas –** Multiple Use Areas are mostly defined by the occurrence of habitat that has a high potential for three or more priority vulnerable species, or are crucial for the conservation of specific plants or wildlife species that are currently listed as threatened. Areas of the Coronado National Forest to the north and south of Tucson, as well as the Saguaro National Park, and the Tucson Mountain Park are identified as Multiple Use Areas.
4. **Wildlife Corridors –** Areas within Canoa Ranch, the Santa Rita Experimental Range and Wildlife Refuge, the Cienega Creek Natural Preserve, the Saguaro National Park (West), and a portion of the Town of Marana are all identified as Wildlife Corridors.

The Circulation Element of the Pima County Comprehensive Plan describes the requirements for transportation improvements within Pima County, which include:

- Off-site transportation infrastructure shall be developed concurrently with land use development to the greatest extent possible, recognizing that much infrastructure development is needed to meet existing traffic demand.
- Roadway and transportation infrastructure shall be designed in an environmentally- or context-sensitive manner to the greatest extent feasible.

- Existing residential areas shall be mitigated from vehicular traffic impacts to the greatest extent feasible when roadway improvements occur.
- Multimodal transportation infrastructure shall balance the needs of all users, and provide viable alternatives to driving where appropriate and to the greatest extent feasible.
- With the exception of private streets, all streets and routes shall require a dedicated right of way.
- All arterial and collector streets, which are a part of the Regional Bikeway Plan, shall be constructed according to the classification shown on the plan. All other major streets should have sufficient pavement width to accommodate bicycle travel.
- Circulation patterns shall discourage transitory automobile traffic flows through existing neighborhoods.

Santa Cruz County Plans and Studies

Santa Cruz County Comprehensive Plan (2004)

The Circulation Element of the Santa Cruz County Comprehensive Plan indicates that SR 82 and SR 83 are designated scenic routes, and have had an increase in North American Free Trade Agreement- (NAFTA) related truck traffic. It was recommended that I-19 be designated as the main hazardous materials route through Santa Cruz County to reduce truck traffic on SR 82 and SR 83. The Comprehensive Plan recommends installation of international symbol signs on I-19, SR 82, and SR 83.

In the Rio Rico area, the report noted that there are large tracts of platted land where development is expected to occur. Frontage road improvements are needed on I-19 to reduce the impacts of developing areas on traffic flow.

With respect to multimodal issues, the report noted that there are no designated bicycle routes in Santa Cruz County. The plan encourages the establishment of transit service in the Rio Rico/Nogales corridor.

Rio Rico Corridor Study (October 2002)

The purpose of this study was to identify an additional all-weather access roadway that connects development lying east of the Santa Cruz River with the I-19 corridor. Historically, residents had all-weather access at Rio Rico Drive, and seasonal access at Santa Gertrudis Lane, an at-grade crossing of the Santa Cruz River. Disputes regarding access rights resulted in Santa Gertrudis Lane being closed to through traffic. Another access point is located at Bridge Road; however, less than four percent of the dwellings in the study area had access to this crossing.

The results of the study concluded that the Palo Parado Crossing and alignment was the recommended alternative for a new, all weather roadway connecting I-19 with developments lying east of the Santa Cruz River.

Town of Sahuarita Plans and Studies

General Plan, Town of Sahuarita (2002)

The Town of Sahuarita is served by I-19 and B-19. The *Circulation Element of the General Plan* map shows improvement projects based on the *Sahuarita Small Area Transportation Study* conducted in 1999, which was updated by the 2005 *Southeast Area Arterial Study*.

Recommendations include the need to identify an acceptable location for the Sahuarita Corridor, and provide direct local access to I-19 and B-19. Circulation policies included the need for the transportation system to accommodate international trade associated with the Canamex corridor.

Multimodal policies include coordinating with Pima County and regional transit service providers when feasible, and promoting a system of bike and pedestrian facilities.

Sierra Vista Plans and Studies

Vista 2000 General Plan (December 2002)

The General Plan makes reference to a *Small Area Transportation Study* (that was under development). The *Small Area Transportation Plan* was to identify future access points on SR 90 and SR 92, and determine possible bypass routes. A Traffic Circulation Plan map, defining roadway functional classifications, was included in the General Plan.

Sierra Vista Small Area Transportation Study

The *Sierra Vista Small Area Transportation Study* included a long-range plan to address the future transportation needs of the city and county through 2020. The study recommended the following roadway improvements:

- **SR 90/SR 92 – Martin Luther King Parkway to Snyder Road –** Widening this roadway by one additional travel lane in each direction.
- **Coronado Drive – Busby Road to Golf Links Drive –** This roadway should be widened by one new lane in each direction.
- **Parkway Concept –** This involves the construction of a new two-lane roadway generally along the Buffalo Soldier Trail alignment from SR 92 to Moson Road, and the reconstruction of the existing Moson Road from Buffalo Soldier Trail extension to Hereford Road. The City and the County should undertake a detailed corridor study to identify the specific location of the

parkway route that could be established as a "growth" corridor for the preservation of right of way for the future.

- **Access Management Techniques –** ADOT, the City, and the County should consider adopting access management strategies to maintain the operational efficiency of SR 90, SR 92, and the parkway into the future.

Southeastern Arizona Governments Organization Plans and Studies

Transportation Improvement Plan Amendment (2005)

The Transportation Improvement Plan Amendment for the period 2005 through 2009 included the following roadway improvement projects for the study area, as displayed in Table A.3.

Table A.3 SEAGO Transportation Improvement Plan Projects

	Project Location	Type of Work	Before Lanes	After Lanes	Length	Fed Aid type	Total Cost
FY 2005							
Santa Cruz	Old Tucson Hwy	Reconstruction	2	2	2.10	STP	$3,161,148
Cochise County	Davis Road	Reconstruction				Sec 115	$3,000,000
FY 2008							
Sierra Vista	Charleston Road	Reconstruction	2	5	1.6	STP	$3,161,148

Tombstone Plans and Studies

City of Tombstone Master Plan

The street element of the *Tombstone Master Plan* documented the following roadway concerns and projects:

- Roadway widening is recommended on Gleeson Road, between the Tombstone city limits and U.S. 80, to alleviate traffic congestion. The report recommended bridge construction over Walnut Gulch to provide access to northeast Tombstone during floods.
- An improvement project is recommended on Charleston Road, between Tombstone and Sierra Vista, to relieve traffic congestion.
- The report recommended a project to close Allen Street, 4th and 5th Streets within the Restoration area to vehicular traffic; to construct a ring road joining Fremont, 3rd, Toughnut, and 6th Streets; and to provide separate parking areas for visitors and people who live within the historic district.
- Street improvements are recommended to meet collector road standards.

Tucson Plans and Studies

City of Tucson General Plan (2002)

The City of Tucson General Plan guides overall land use decisions, resource allocation, and sets policies related to growth for the City of Tucson. The Plan defines seven goals called, *Livable Tucson Goals*:

1. Better alternatives to automobile transportation;
2. Safe neighborhoods;
3. Infill and reinvestment, not urban sprawl;
4. Abundant urban green space and recreation areas;
5. Protected natural desert environment;
6. People-oriented neighborhoods; and
7. Successful downtown.

While the General Plan covers a broad range of subjects, the two elements that are most important to transportation planning are: 1) land use and 2) circulation.

Land use – This element identifies four distinct growth areas within the city:

1. Central core,
2. Mid-city,
3. Evolving edge, and
4. Future city.

According to the General Plan, Tucson should expect a population growth rate of approximately 1.8 percent per year over the next 25 years.

Circulation – This element recognizes the excellent airport, railroad, and freeway facilities that exist within Tucson; and identifies these features as gateways to Mexico and the West Coast. Development of a safe and multimodal transportation system is encouraged, although it is recognized that private automobiles will be the mode for the vast majority of trips. Efforts to minimize the duration of traffic congestion and traffic accident rates are also encouraged.

The following policies are included within the circulation element:

- Provide an integrated, multimodal, metropolitan transportation system that offers attractive choices among modes for the efficient movement of people and goods;
- Provide a continuous system of functional segments and points of convenient transfer from one mode to another;
- Ensure that transportation investments improve the mobility of all segments of the community, including the underserved, disabled, and economically disadvantaged;

- Promote an effective, well-planned system of roadways that establishes a functional, safe, and aesthetic hierarchy of streets, while incorporating the latest advanced technologies;
- Promote efficient transportation connectivity to major trade corridors, which enhance the region's standing as a major economic hub;
- Protect the natural and built environments from adverse impacts resulting from the provision of transportation facilities and service;
- Promote investments in the transportation systems that complement investments in other public infrastructure and utilities, and promote a beneficial impact on the region's economic vitality; and
- Build and sustain public support for the implementation of transportation planning goals and objectives, including the financial underpinnings of the plan, by actively seeking meaningful community involvement.

Willcox Plans and Studies

City of Willcox General Plan (2002)

The transportation element of the general plan indicated that there is a need for improvements to I-10 (Exit 340) at Rex Allen Drive. New ramp configurations should be designed to alleviate traffic congestion, particularly from truck turning movements at Arizona Avenue and Rex Allen.

It was recommended that a long–term circulation plan be developed. With regards to multimodal transportation, there is regular, but limited bus service to Willcox. A recommendation is to expand transportation options, with special attention to bus, train, and van shuttle service.

A review of the ADOT Reports listed in Table A.1 provided the following information regarding AASHTO design deficiencies. These are summarized in Table A.4.

Table A.4 AASHTO Design Criteria Deficiencies

Document Title	Date	Design Criteria Deficiencies
I-10 Final Project Assessment: State Route 90 TI	February 2005	The horizontal curves comprising the "S" curve on I-10 EB and WB do not meet AASHTO design criteria. Although they are within the MP limits of the project, no work is being done on mainline I-10 (except for the reconstruction of the SR 90 TI bridges).
I-10 Final Project Assessment: State Route 90 TI to Ocotillo TI	April 2004	AASHTO Controlling Design Criteria Review was not done because this project was considered a spot improvement.
I-19 Initial Project Assessment: West Frontage Road Country Club Road to Ruby Road	September 2004	The existing 1-foot shoulders do not meet ADOT design guidelines or current AASHTO recommendations. The superelevation rates are less than AASHTO recommendations for 10 horizontal curves. The existing profile grades exceed current ADOT design guidelines in three locations.
I-19 Revised Initial Project Assessment: San Xavier Road – Ajo Way(Jct. SR 86)	June 2003	Design exceptions for this pavement widening project were needed for vertical clearances and pavement cross slope.
I-19 Initial Project Assessment: Southbound Frontage Road, MP 5.8 to MP 6.1	July 2002	AASHTO Controlling Design Criteria Review was not done because this project was considered a spot improvement.

Table A.4 AASHTO Design Criteria Deficiencies (continued)

Document Title	Date	Design Criteria Deficiencies
I-19 Corridor Study, I-10 to Pima/Santa Cruz County Line, Corridor Study and General Plan	October 2003	The Drexel Road grade-separation at MP 60 and the pedestrian overpass at MP 61.4 do not meet AASHTO standards for structure width and barrier walls. Seventeen vertical curves do not meet stopping sight distance requirements. The most significant design exceptions for stopping sight distance are located at the El Toro railroad grade separation and the Pima Mine Road grade separation. Frontage roads – All frontage roads meet the travel lane width, shoulder width, and profile grade requirements set forth by AASHTO. Several long segments of the frontage road do not meet superelevation requirements, and there are six vertical curves that do not meet stopping sight distance requirements. The Tinaja Bridge, the Esperanza Wash Bridge, and the Old Junction Wash Bridge do not meet AASHTO standards for structure width and barrier walls. The Tinaja Bridge does not meet required structural capacity. Interchanges – AASHTO design exceptions are present at all traffic interchanges, except Continental Road. The following summarizes the design exceptions at non-compliant interchanges: stopping sight distance and superelevation on ramps were observed design exceptions at eight interchanges; crossroad width was an observed exception at the San Xavier Road and Ajo Way interchanges; degree of curvature on ramps was an observed exception at the Pima Mine Rd interchange; bridge structural capacity was an observed exception at the Papago Rd interchange; bridge structure width was an observed exception at the San Xavier Rd interchange; and bridges that were rated as "structurally deficient are Bridge – 397 (Esparanza Wash Bridge (MP 35.92)), Bridge – 1307 (Papago Overpass (MP 54.4)), Bridge – 1308 (Papago Overpass (MP 54.4)), Bridge – 356 (Tinaja Wash Bridge (MP 31.0)) and Bridge – 1124 (Pedestrian Overpass (MP 61.4)).
SR 80 Project Scope: B-10 TI (UPRR Underpass/SR 80)	April 1999	This report included project scope only.
SR 82 Final Project Assessment: MP 40.6	March 2005	AASHTO Controlling Design Criteria Review was not done because this project was considered a spot improvement.
SR 82 Final Project Assessment: MP 36.58 and MP 36.89	March, 2005	AASHTO Controlling Design Criteria Review was not done because this project was considered a spot improvement.

Table A.4 AASHTO Design Criteria Deficiencies (continued)

Document Title	Date	Design Criteria Deficiencies
SR 90 AASHTO Design Criteria Report: Central Avenue to Moson Road (Whetstone TI – Jct. SR 80 Hwy)	August 2004	On this roadway widening project, design criteria review indicated: design exception requested to use 4-foot outside shoulders rather than the standard 8-foot shoulders in order to make the new roadway section compatible with the existing roadway at either end. Currently, the shoulder width is 5 feet. The one curve on the project (station 172+32.37) did not meet current standards for superelevation. The proposed design will meet the criteria.
SR 90 Initial Project Assessment: Central Avenue to Moson Road MP 323.74 to MP 325.37	February 2005	See above.
SR 90 Initial Scoping Letter: San Pedro River Bridge #425	January 2002	AASHTO Controlling Design Criteria Review was not done because this project was considered a spot improvement.
SR 189 Initial Project Assessment: MP 0.095 (International Border Station)	August 2002	AASHTO Controlling Design Criteria Review was not done because this project was considered a spot improvement.
U.S. 191 Final Design Concept Report: Whitewater Draw to Thompson Road	December 2003	Both lane widths (11 feet) and shoulder widths (3 feet) do not meet AASHTO and ADOT design standards. Three of the 12 vertical curves do not meet current passing sight distance standards.
U.S. 191 Final Project Assessment: 191A, Sunsites at High Street	October 2004	AASHTO Controlling Design Criteria Review was not done because this project was considered a spot improvement.

Source: ADOT Reports.

Shoulder Widths

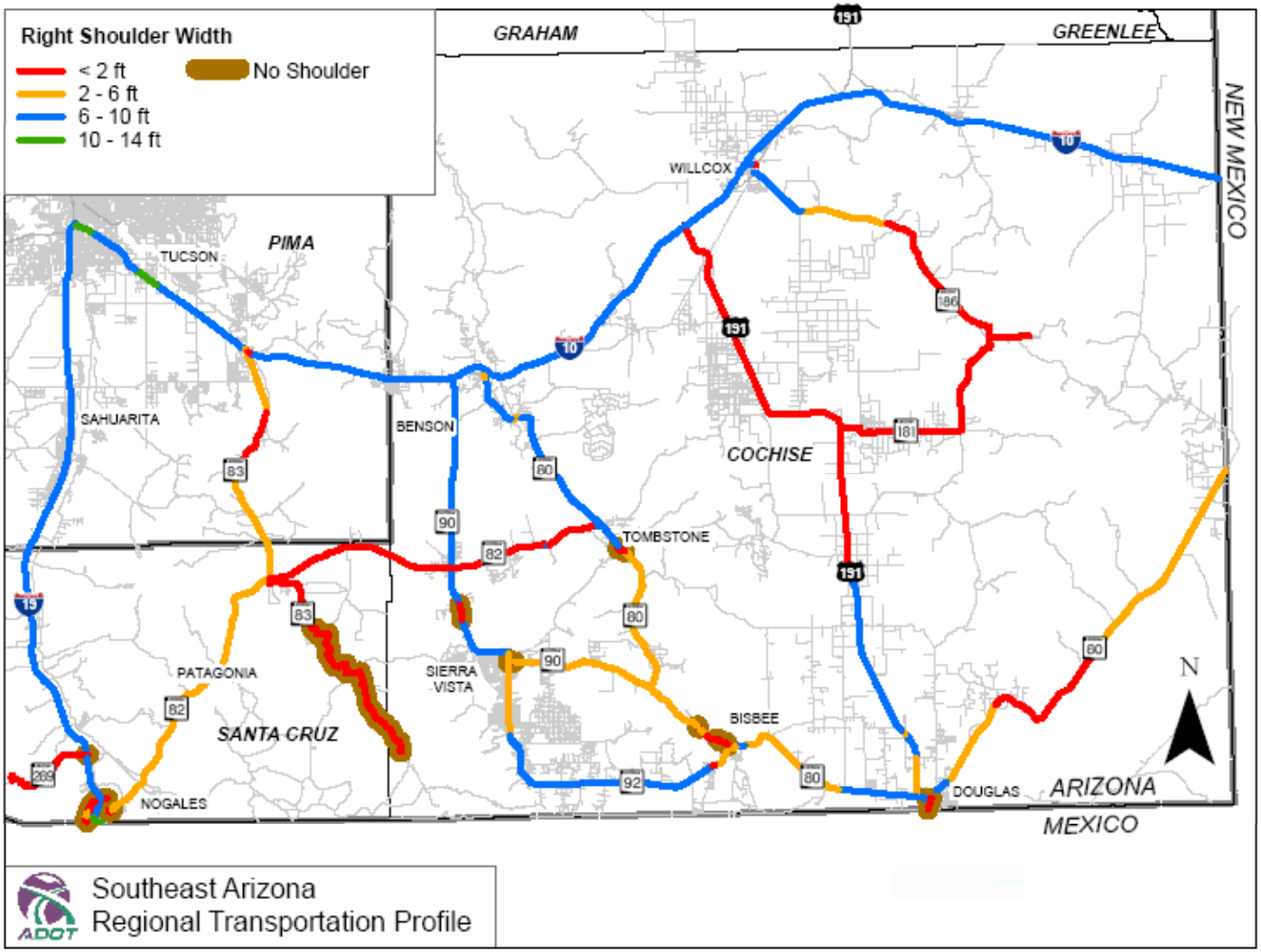
Right-shoulder width plays a role in roadway capacity and safety, and whether bicycles may be ridden on the roadway. Shoulder widths on I-10 and I-19 generally range from six to 10 feet, with some small segments with shoulder widths of 10 to 14 feet. Large segments of U.S. 191, SR 80, SR 82, SR 181, and SR 186 have shoulder widths less than two feet wide. A large segment of SR 83 does not have any shoulders, as well as smaller segments of SR 90 near Sierra Vista and Bisbee, SR 80 near Tombstone, and U.S. 191B near Douglas. The right-shoulder width for study area roadways is displayed in Figure A.1. Roadway segments with no shoulders are displayed in Table A.5.

Table A.5 Roadway Segments with No Shoulders

Road	From (Shown as Milepost or Street)	To (Shown as Milepost or Street)	Miles	AADT	No. of Lanes
SR 289	I-19 Frontage	I-19 Exit 12 C-Ramp	0.186	204	2
SR 189	M002+0.50	M002+0.86	0.360	14,077	4
SR 189	M002+0.86	SR-19B (1)	0.853	27,916	4
SR 83	M013+0.65	M023+0.50	9.58	330	2
SR 82	SR-19B (1)	M001+0.80	0.611	3,358	4
SR 189	M000+0.00	M000+0.36	0.360	12,766	4
SR 83	Cochise/Santa Cruz CB	M013+0.65	6.77	330	2
SR 189	Target Range Rd	M002+0.50	1.39	12,442	4
SR 90	M313+0.38	M313+0.60	0.220	13,766	4
SR 80	Pirtleville Rd	U.S.-191B	0.540	11,146	4
SR 90	M313+0.60	M313+0.91	0.310	14,713	4
SR 90	Charleston Dr	SR-92	0.272	16,900	4
SR 83	Coronado Trl	Cochise/Santa Cruz CB	3.59	330	2
SR 90	SR-92	Colombo Ave	0.583	16,563	4
U.S. 191B	M000+0.55	14th St	0.499	10,036	4
U.S. 191B	M000+0.00	M000+0.23	0.230	2,934	4
SR 90	M312+0.31	M313+0.38	0.878	13,766	2
SR 80	M339+0.04	M339+0.30	0.260	4,515	2
SR 90	M312+0.21	M312+0.31	0.100	13,766	2
SR 80	M316+0.54	M316+1.47	0.930	6,200	4
SR 80	SR-80 Exit 341 G-Ramp	Erie St + 0.099	1.31	8,477	4
U.S. 191B	14th St	M001+0.15	0.10	10,036	4
U.S. 191B	M000+0.23	M000+0.55	0.320	3,330	4

Source: 2003 HPMS.

Figure A.1 Right-Shoulder Width of Study Area Roadways



ADOT Access Management Policies

Policy Number 12, Access Management, states the following:

It is the policy of the Board to preserve the functional integrity of the State Highway System through the development and implementation of a comprehensive access management program by:

- *Directing ADOT to develop an access management classification system for the State Highways with appropriate access management standards for each access management classification.*
- *Directing ADOT to develop a comprehensive access management manual to guide the uniform application of access management throughout the State.*
- *The Board and ADOT shall work closely with regional planning agencies and local governments to encourage early notification to ADOT of zoning and other land use decisions, such as large developments and major traffic generators that will impact the State Highway System in order to coordinate system planning.*
- *Purchasing access rights to highways, where appropriate and feasible.*
- *Maintaining that the approximate minimum spacing between interchanges on the limited access State and Interstate Highway Systems be three (3) miles in rural areas, two (2) miles in suburban or transitional areas, and one (1) mile in urban areas*
- *Considering ramifications to the corridor, and its future use, when access is granted to the State and Interstate Highway Systems.*

ADOT Median Opening Policy

Policy Number 1060 from the ADOT Traffic Engineering Policies, Guidelines, and Procedures Manual, January 2000, Section 1000, Miscellaneous includes the following regarding median openings on state highways.

All median openings shall be designed to include median storage lanes for both directions of travel. The length of storage lanes shall be determined from appropriate traffic data, but shall not be less than 100 feet. The length of taper shall be determined from the design speed of the roadway. Median openings at intersections shall be established to provide access to improved public streets at a spacing which provides for adequate left-turn (U-turn) storage lanes. The spacing between median openings at intersections shall not be less than 330 feet.

Median openings between intersections may be established for public safety and convenience if indicated by an appropriate engineering study, provided that:

a. In an urban area, the opening is not closer than 660 feet to an intersection with an improved public street or another median opening.

b. In a rural area, the median opening is not less than 1,320 feet from an intersection with an improved public road or another median opening.

Median openings may be established for a business generating relatively high traffic volumes, provided that:

a. The minimum left-turn traffic volume is 500 vehicles per day or 100 vehicles during the peak hour in urban areas where the major street speed limit is less than 40 miles per hour.

b. The minimum left-turn traffic volume is 350 vehicles per day or 70 vehicles during the peak hour in:

1) urban areas where the major street speed limit is 40 mph or greater;

2) isolated communities having a population less than 10,000; and

3) rural areas.

c. The distance to the nearest adjacent median opening is not less than 330 feet.

For the purpose of these guidelines, an urban area exists where property abutting the highway is 50 percent developed and improved for a minimum length of one-half-mile on either side of the roadway, and a regular pattern of sidestreets has been dedicated and improved for public usage. A rural area is a location not classified as urban.

B. Nogales Railroad Assessment Study (White Paper)